

Aug Financial Review

Sept. 17, 2012



101 Fluids and Combustion Facility, MIP & TSC



ZIN Manager: Michael Johanson

ZIN Engineering Lead: M.O'Toole

ZIN Operations Lead: T. Wasserbauer

ZIN Integration Lead: C. Rogers

NASA Program Manager: Tom St'Onge

NASA Project Manager: Bob Corban (Kevin McPherson)



SpaceDOC 101 encompasses the International Space Station (ISS) Fluids and Combustion Facility (FCF) Project and its initial payloads, Light Microscopy Module (LMM) and the Multi-user Droplet Combustion Apparatus (MDCA) have been launched and the flight units are installed on the ISS. The Flight units on the ISS, as well as the units on the ground (Ground Integration Units and the Engineering Development Units) need to be operated and maintained. This Delivery Order is for the operation of the FCF racks on orbit and on the ground, resolution of any anomalies, evaluation of trends, software upgrades, hardware obsolescence evaluation, new hardware development to support future capabilities, verification, and training the crew and operators on the hardware/software. Also, as new payloads are developed for the FCF, analytical modeling and engineering analysis of the interface will be required.



The CIR Flight Unit, along with MDCA, was delivered to the ISS by STS-126 (November 2008). The FIR Flight Unit along with the LMM were delivered to the ISS by STS-128 (August 2009).

Issue	Potential Impact	Action Plan	Resolution Date
CIR Loss of MRDL/LRDL Telemetry	Complete loss of CIR Facility	IOP hard drive s/n 2001 removed from \sd0. Drive s/n 2002 moved from \sd0 to \sd1. Drive s/n 2006 installed from stowage and updated to current s/w revision. IOP is functioning nominally. Drive s/n 2001 requested for return manifest	Resolved
CIR ICM Communications	Loss of primary FLEX2 science instrument	No repeat loss of communications has been exhibited by the DCM since the initial anomaly Ground spare is being accelerated to earliest manifest opportunity TBD possibly ATV4 No on-orbit spare	TBD
FIR White Light Lamp burnout	Delay in ACE operations	ACE operations completed with cable swap to the second white light lamp. Remove and replace of the failed lamp will be scheduled with for most efficient crew utilization Updating maintenance plan with bulb history and pre-failure trend profile	Resolved
FLEX - motor position error associated with the fuel reservoir dispenser #2	limits the ability to dispense fuel from the reservoir. Significant threat to near-term operations.	Needle assembly #2, s/n 2005 removed and replaced with needle assembly #2 s/n 2006. Subsequent operations show nominal fuel flow. Needle assembly #2, s/n 2005 requested for return manifest	Resolved

- **FLEX2 Science Matrix**
 - Continued the FLEX2 Quiescent/Convective Matrix
 - Aug total is 11 downlink test point ignitions
- **ACE Science**
 - Completed ACE particle samples #1 & #2
 - Based on PI recommendation samples sets 3- 5 were removed from the operation plan
- **Integration**
 - Coordinated manifest list, safety package, MIUL and ship dates for the SPX2, ATV4 and HTV4 launches
 -
- **Supported crew increment training at JSC**
- **Released flight software product FCF-Diagnostics Bundle, Version 12-01 which provides a set of tools to enable evaluation and corrective actions for on-orbit anomalies.**
- **Update CER cost and schedule plan for the FCF IPSU and LMM camera**
- **Prepared draft of calibration plan to support CIR/ISS life extension plan**
- **Hardware deliverables**
 - Completed assembly of the MDCA color camera spare, successfully passed vibration test
 - Completed assembly of the spare LCTF modules (2)
 - Completed assembly of the spare ICM
 - Successfully completed GCIP off-gas testing

2012 Deliverables List

101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA

Deliverable	Planned	Actual	Note
Smoke Detector spare	Feb-2012	4/2012	
ATCU Fan Assemblies (2) spares	Apr-2012	4/2012	
ATCU Fan Filter Electronics Box spare	Apr-2012	4/2012	
EEU spare	Apr-2012	4/2012	
GCIP flight unit	Jun-2012		Assembly and test completed. Verifications in process, delivery for ATV-4 (Dec)
MDCA Avionics Package spare	Jun-2012		Assembly and test completed. Verification closure planned September
CIR Windows (2) spares	Jul-2012	3/2012	
LMM Control Box spare (No Environmental)	Jul-2012		Out of plan board vibe required. Assembly completed planned December
QD Lubrication Kit (if required)	Jul-2012		Concept coordinated with ISS Qdirt. Final design pending program feedback
IPSU spare - Remora	Sep-2012		
Focus Prism spare	Nov-2012		
DCM spares (2)	Nov-2012		
ICM spare	Nov-2012		
MDCA Color Camera spare	Nov-2012		
GIU LCTF	Dec-2012		
Common IAM spare	Dec-2012		

Risk Matrix - FCF

101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA



CONSEQUENCES

Criticality

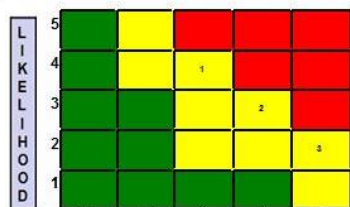


L x C Trend

- ↓ Decreasing (Improving)
- ↑ Increasing (Worsening)
- UnChanged
- * New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-026 → Technical Beltram	LMM GIU does not fully emulate the flight unit	Given that the LMM GIU does not fully emulate the flight unit; the possibility exists that future LMM flight experiments will not operate correctly.	3	3	Mitigate: Plan is to review LMM GIU non-flight design issues, and add task to update LMM GIU to the next DO period of performance. Status: 12/21/11 - Task has been added to the DO to upgrade to LMM GIU. 01/11/12 - No updates at this time. 02/17/12 - The LMMGIU has been assessed and the upgrades needed to emulate the flight system have been identified. Additionally, microscope motor functions are in the process of being repaired. 03/28/12 - Risk has been reviewed and there are no changes to its status at this time. 04/23/12 - Currently preparing trouble shoot procedures for LMM motor functions. 06/18/12 - This risk was reviewed and there are no updates at this time. 07/27/12 - Turret motor problem diagnosis has been completed and repair for it is in process. ECD: 07/02/2012
FCFSE-029 * Technical O'Toole	ICM failure	Given that the ICM may fail; then there will be a significant impact to the back lit imaging science instrument to occur.	3	3	Mitigate: Develop ICM spares. Status: ECD: 04/30/2013
FCFSE-014 ↓ Technical Beltram	IOP removable hard drive shelf life	Given that the IOP removable hard drives have a limited shelf life; then there is the possibility that these hard drives won't work over time and the FIR and CIR racks will not be able to provide support for their payloads to perform science operations will occur.	2	3	Mitigate: Implement a procedure to re-format the hard drive on-orbit to minimize loss of magnetic field encoding data on the disk. Status: 04/23/12 - Currently on track for the development of the formatting procedure. 06/18/12 - This risk was reviewed and there are no updates at this time. 07/27/12 - Formatting being developed. 09/12/12 - Documented format procedure is in process of being developed. ECD: 08/30/2013

7



CONSEQUENCES

Criticality

High (Red)

Med (Yellow)

Low (Green)

L x C Trend

↓ Decreasing (Improving)

↑ Increasing (Worsening)

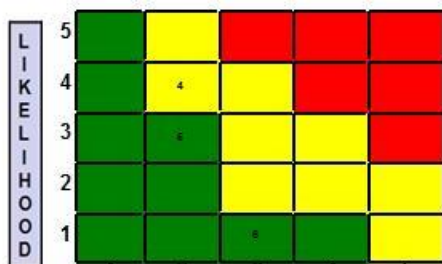
→ UnChanged

* New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
MDCA-012 ★ Technical O'Toole	FLEX-2J Droplet Size Repeatability	Given the tolerance on droplet reproducibility has not been demonstrated there is possibility that we will not meet the reproducibility requirement	4	3	Mitigate: Review science requirement with JAXA and determine the capability of the flight hardware to meet the science requirement. Status: 06/18/12 - Not started. S/W engineering resource not available as of 6/15/2012. Expected closure date is Aug 31, 2012. 09/12/12 - Awaiting for the revised MDCA S/W to complete the last mitigation task. ECD: 10/31/2012
MDCA-011 ★ Technical O'Toole	FLEX-2J Deployment Validation	Given that we cannot verify multiple droplet deployments in a 1G environment there is possibility that not all science will be met	3	4	Mitigate: Develop a robust 1G validation program Status: 06/18/12 - Not started. S/W engineering resource not available as of 6/15/2012. 07/27/12 - S/W developer resource got a late start. 09/12/12 - Pushed out the first mitigation task by one month per monthly RMWG. ECD: 10/31/2012
MDCA-007 ★ Cost O'Toole	Lack of on-orbit spare avionics box	Given that there is no flight spare MDCA avionics box on ISS and there are no plans or budget to build a flight or GIU MDCA avionics box; then there is the possibility that, if the MDCA avionics box becomes inoperable, a complete loss of the ability to obtain FLEX-2 science will occur.	2	5	Mitigate: A plan to build a flight spare avionics package is authorized under the current DO with delivery planned for the 4th quarter of 2011. Status: 08/24/11 - Still on schedule to deliver flight spare avionics box. 10/04/11 - The project is still targeting the flight spare avionics delivery in December of 2011. 11/15/11 - Delivery of the assembly is projected for February 1, 2012. Verification and manifest is expected to be included in the follow-on DO period of performance. 03/07/12 - Flight spare MDCA avionics box is in the process of being built per ZIN Tech MWO. 03/28/12 - Flight spare avionics box is tentatively scheduled for several environmental tests as follows: Vibe & EMI in May of 2012 and Thermal Cycle in June of 2012. 04/23/12 - Flight spare avionics box is in the process of being built. 06/18/12 - Assembly complete. Vibration and EMI testing Completed. Thermal Cycle testing scheduled for June 2012. ECD: 09/28/2012

Risk Matrix - FCF

101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA



CONSEQUENCES

Criticality

High

Med

Low

L x C Trend

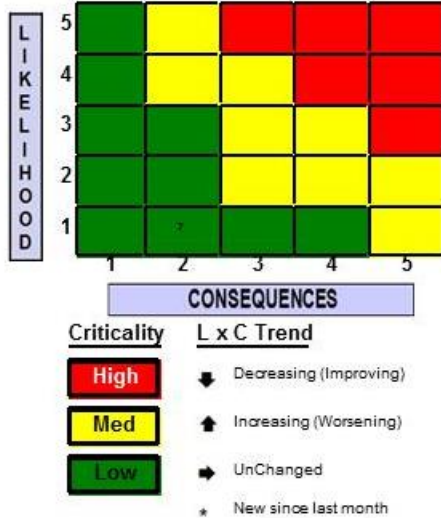
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↑ Increasing (Worsening)

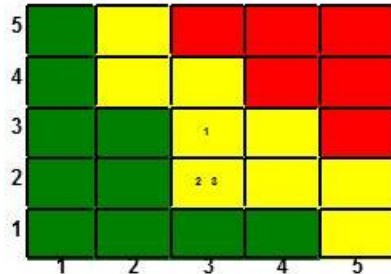
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★ New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
MDCA-013 ➡ Technical O'Toole	FLEX-2J Droplet Imaging Resolution	Given that there is limited performance data for the droplet imaging camera at 60 frames per second there is possibility that we will not meet the resolution requirement	4	2	Mitigate: Review science requirement with JAXA and determine CIR h/w capability. Status: 06/18/12 - Resolution test pending 60 fps camera configuration. Initial attempt to operate at 60 fps failed. Expected closure date is Aug 31, 2012 per O'Toole's e-mail Friday 6/15/2012. 09/12/12 - Demonstrated that there is a 60 fps capability. The resolution test still needs to be done. ECD: 08/31/2012
MDCA-010 ➡ Schedule O'Toole	FLEX-2J SRD not signed	Given that the FLEX2J SRD is not signed at PDR there is a risk that project cost and schedule will not be met.	3	2	Mitigate: Document requirements as understood via previous TIMs and coordinate with JAXA to obtain concurrence Status: 06/18/12 - Reviewed updated draft document with JAXA rep. Signature parties identified per O'Toole's e-mail Friday 6/15/2012. 07/27/12 - FLEX-2J is still in work by the PI. Latest JAXA comments have been incorporated into the SRD. 09/12/12 - GRC Science, JAXA Science, as well as GRC Project management & Zin Engineering have all signed off on SRD. Awaiting for NASA HQ to sign off and approve. ECD: 09/28/2012
MDCA-014 ➡ Technical O'Toole	ICE-GA combustion by-products	Given that the hexanol combustion by-products are not established there is the possibility that the ICE-GA hexanol fuel may not be allowed on ISS.	1	3	Mitigate: The project intends to perform by-product testing on hexanol to show it is compatible with ISS vents requirements and meets toxicity limits. Status: 09/12/12 - Test has been initiated. ECD: 10/31/2012



Risk Id	Risk Title	Risk Statement	L	C	Approach
MDCA-015 Schedule O'Toole	Unapproved ICE-GA Science Requirements Document	Given that the ICE-GA SRD is not signed at PDR there is a risk that project cost and schedule will not be met.	1	2	Mitigate: Get the SRD signed by both Italians and Project. Status: ECD: 09/28/2012



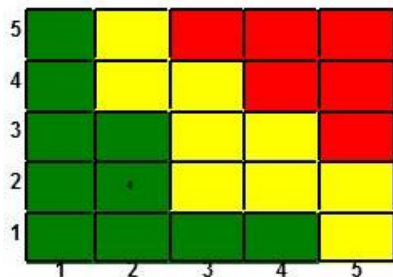
Criticality



L x C Trend

Decreasing (Improving)
Increasing (Worsening)
UnChanged
New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
TSC-004	Lack of support depth	Given that there is no more than 1 subject matter expert in the areas of TSC System administration, FCF Ground software, and FCF data post-processing, there is a risk that FCF will not be supported adequately to ensure mission success.	3	3	Status: ECD: 12/28/2012
Cost					
TSC-002	DICES III voice loop system obsolete	Given that DICES III system hardware is at end-of-life, there is a risk that voice loop services will not be available to support mission operations.	2	3	Status: ECD: 12/28/2012
Technical					
TSC-003	Video System Difficult to Support	Given that the Grass Valley video matrix and AMX video switch system uses an unmaintainable and undocumented configuration, there is a risk that all video channels may not be available to support mission operations.	2	3	Status: ECD: 12/28/2012
Technical					



Criticality



L x C Trend

- Decreasing (Improving)
- Increasing (Worsening)
- UnChanged
- New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
TSC-001	Stale TSC documentation and not up to date	Given that documentation has not been updated as physical changes are made at the TSC, there is a risk that troubleshooting and maintenance will not be properly performed.	2	2	Status: ECD: 12/28/2012
Technical					

102 Acceleration Measurement Program (AMP)

Engineering Lead Jennifer Keller & Ray Pavlik

NASA Program Manager: Tom St. Onge

NASA Project Lead: Kevin McPherson / Bob Hawersaat



SAMS Objective:

- Provide acceleration measurement systems that meet the requirements of the researchers on board the International Space Station.
- SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.

MAMS Objective:

- Provide acceleration measurement system that measures the Quasi steady and vibratory acceleration data in the 0.00001 to 100 Hz frequency range on board the International Space Station (ISS) vehicle

PIMS Objective:

- Provide acceleration measurement data to Principal investigators who conduct scientific research on board the International Space Station.
- The SAMS acceleration measurement system provides the raw data that PIMS uses to provide analysis to the Principal Investigators. SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.



WBS	Milestone	Start	Baseline	Projected	Actual	Schedule Variance
1.8.9	SE Cable – at least 144 inches in length	7/12		12/12		
1.8.10	Spare TSH-ES and TSH-ES 08 for MSG	7/12		12/12		

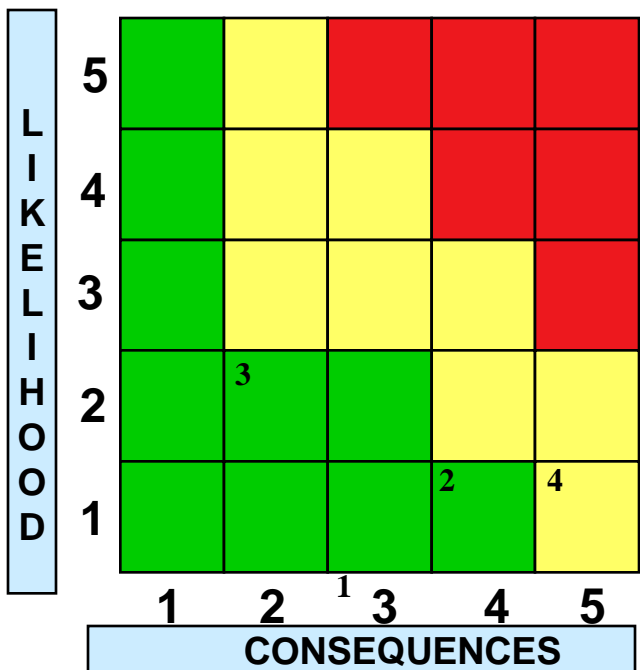
Issues and Concerns

102 AMP (SAMS, MAMS, PIMS)

Issue	Potential Impact	Action Plan	Resolution Date
Network issues onboard delaying EE-F05 boot process	EE-F05 not booting	Work with DMC to help determine network issues.	Moved sensor back to EE-F05 and the network troubles have not appeared as of late. Continue to work with Express if/when it does occur.
Crew office cannot properly torque the SAMS MSG baseplate into the MSG WV	Not a good surface mount for the SAMS TSH-ES	<ol style="list-style-type: none"> 1. ECO the SAMS AIDD to call out the torque values for the baseplate 2. Request in writing the issue and why it cannot be performed. 	<p>9/15/09 – telecon held with MSG. It was decided that the fasteners on the SAMS baseplate for the TSH-ES will not be torqued. Integrated Safety Hazards are being updated on the MSG side, and SAMS is clarifying a SAMS safety hazard.</p> <p>TSH installed in MSG and working with SODI. Crew procedures said to be hand tight.</p>
Long term budget for sustaining/sparing		<ol style="list-style-type: none"> 1. Kevin working with Bob on POP charts for FY 2012 	
Don Parrott	Staffing & funding		
ICU laptop lockup – hostname not set	Would not boot any EE	<ol style="list-style-type: none"> 1. Determine how to reset the hostname 	9/12/12 – uploaded new rc.conf file with a line to set the hostname. Rebooted the laptop and it set the hostname. EE's have booted and SAMS is operating nominally.

Top Risks

102 AMP (SAMS, MAMS, PIMS)



Criticality	LxC Trend	Approach
High	Decreasing	M-Mitigate
Med	Increasing	W-Watch
Low	Unchanged	A-Accept
	New	R-Research

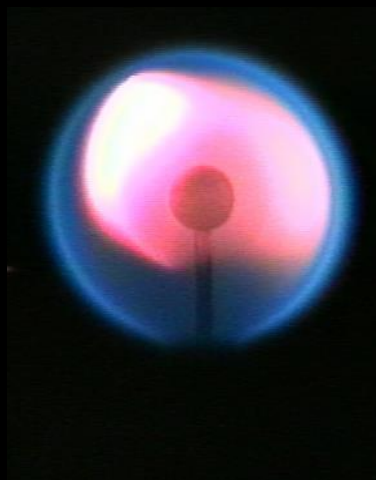
Approaches: Mitigate, Watch, Accept, Research

Risk ID	Risk Title	Risk Statement	L	C	Approach
DO102-1	TSH-ES wire size	Wire sizing could limit usage of the TSH-ES. The use of 12 gauge wire would increase the size of the TSH. Many power suppliers have 20 amp breakers.	1	2	Watch: Will address risk with inline breakers if a customer requires it. Not a problem for FIR or CIR. Status: Does not affect FCF or MSG. Will address when there is a user. Close date: Future User
DO102-2	Commanding Issue	NCR 237 identified: The laptop may lockup when commanding to the TSH-ES that is running at 400 Hz.	2	3	Watch: The system will need to be rebooted only. Alternative means to address this issue in future software builds will be considered. 400 Hz mode not a normal operating mode. Status: Waiting for funds to consider s/w fix Close date: On going
DO102-3	SAMS Sparing	SAMS PCS hardware not supported by the ISS program.	3	2	Mitigate: Ghosting function for hard drives in place. Laptop shells, spare hard drives and floppy drives have been set aside on ISS for SAMS use. Status: Need to configure one more set of spare hard drives Close date: 04/09
DO102-4	SAMS Fan Regulator	SAMS RTS Drawer #2 fan regulator frequency varies	2	4	Watch: Fan speed has shown the variable frequency for several months and has not shown any distinct changes in behavior over that period of time. Status: Need to configure one more set of spare hard drives Close date: 04/09

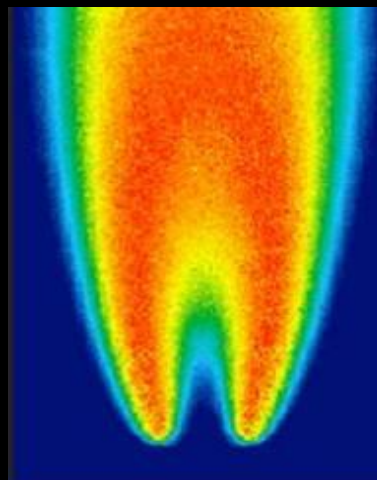
August 2012



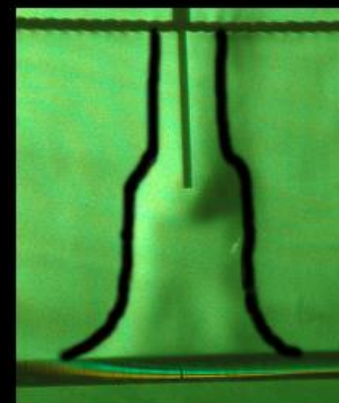
s-Flame
(drop test)



Flame Design
(drop test)



CLD Flame
(aircraft test)



2850 V

E-FIELD Flames
(1g schlieren)

Manager: Brian Borowski

NASA Program Manager: Tom St. Onge

NASA Project Lead: Mark Hickman

NASA Project Scientist: Dennis Stocker

SpaceDOC 110 encompasses the initial development phase of ACME including requirements and verification development and planning, flow system breadboard interface with existing FOMA breadboard and color camera trade studies to ultimately provide a new diagnostic capability for CIR. Work on Engineering Model design is included following completion of Preliminary Design Review in January of 2011.

Issues	Potential Impact	Action Plan	Resolution Date
Coming out of the Phase 0/1 Safety Review there are some potential programmatic impacts involving materials, basic design elements and test matrices	Could result in changes to the design and/or test matrices	Project Scientist has been informed of areas of concern and will address and baseline the test matrix . Materials concerns are being re-assessed	4/12 Project Scientist has addressed the potential impacts. Decisions are now at a programmatic level
Following functional testing of the E-Field Subsystem and EMI testing of the same subsystem some requirement compliance issues have arisen with regard to rise times and energy levels	Unable to meet science requirements	Project Scientist has been informed of test results and is assessing the impacts to the test matrices with the PIs	9/12

- Participated in successful completion of BRE SCR. Presented ACME designs and preliminary design concepts for incorporation of BRE into ACME
- Continued build of EM Avionics Package
- Started build of Flight Avionics Package
- Completing flight drawings for Color Camera Package. They are currently being checked before being released
- Procured EM radiometers and PMTs
- Many wiring harnesses are currently in development

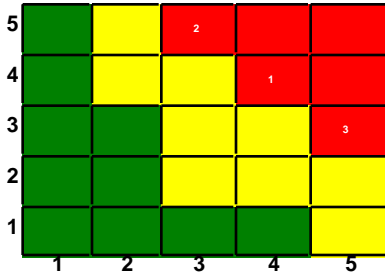
Milestone Schedule

110 Advanced Combustion via Microgravity Experiments

WBS	Milestone FY12	Credit	Start	Baselined	Projected	Actual	Scheduled Variance
1.1	Interim Design Review	100% package complete	May 2012	June 2012		June 2012	



Task Level Risk Assessment

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CONSEQUENCES

Criticality

L x C Trend

High

↓ Decreasing (Improving)

Med

↑ Increasing (Worsening)

Low

→ UnChanged

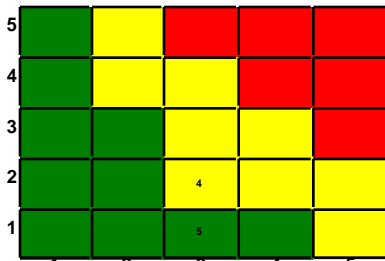
* New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
ACME-021 ➡ Technical Mroczka	Inability to disassemble Mass Flow Controllers for Conformal Coat / Ruggedizing	Given that the Mass Flow Controllers cannot be fully taken apart to perform conformal coating and staking on the electronic boards; then there may be an incompatibility with elements of the chamber atmosphere including fuels, oxygen and diluent mixtures causing CIA electronics to fail.	4	4	Mitigate: This risk will be re-assessed after reviewing the results of the analysis scheduled to take place by September 2012. Status: ECD: 09/28/2012
ACME-014 ↓ Technical Rogers	IPSU to IOP image transfer rates take too long	Given that the current data transfer rates from the IPSU to the IOP is severely limited, transfer of ACME data may take an unacceptable amount of time and may reduce obtainable science for the allotted operational time on board ISS.	5	3	Watch: Need to keep an eye on this and follow up with the CIR team to keep updated on transfer improvements. Status: 12/13/11 - The FCF team has improved transfer rates by utilizing both IOP hard drives. The FCF team needs to provide quantitative data transfer rates. 03/27/12 - Risk reviewed by the ACME team and no status updates at this time. 05/08/12 - ACME RMWG has reviewed this risk and there are no updates at this time. 06/12/12 - Risk was reviewed at the monthly ACME RMWG and there are no updates at this time. 07/27/12 - Negotiations to fund an IPSU upgrade with increased data transfer rates has been initiated. ECD: 12/31/2012
ACME-010 ➡ Technical Mroczka	CIA electronics and fuel mixture compatibility	Given that the CIA electronics is exposed to chamber atmosphere; then there may be incompatibility with elements of the chamber atmosphere including fuels, oxygen and diluent mixtures causing CIA electronics to fail.	3	5	Mitigate: This risk will be re-assessed after reviewing the results of the analysis scheduled to take place by September 2012. Status: ECD: 12/25/2012



Task Level Risk Assessment

LIKELIHOOD



CONSEQUENCES

Criticality

L x C Trend

High

Decreasing (Improving)

Med

Increasing (Worsening)

Low

UnChanged

* New since last month

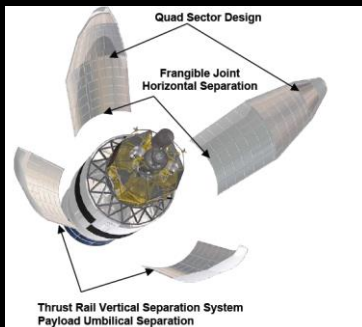
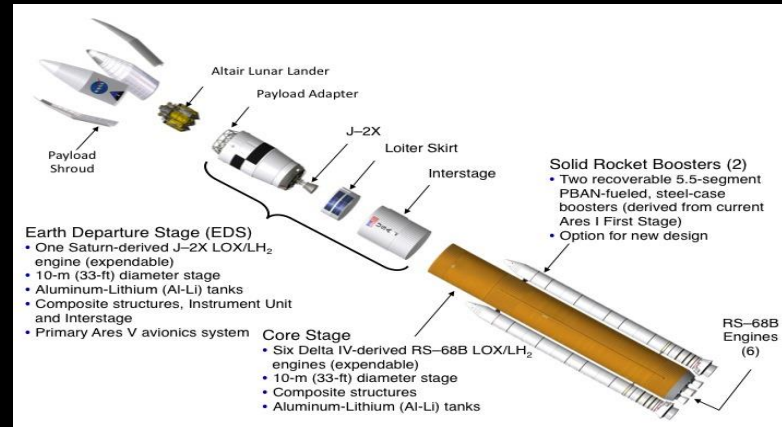
Risk Id	Risk Title	Risk Statement	L	C	Approach
ACME-008 ↓ Technical Gobeli	E-field emission exceedences	Given that there might be e-field exceedence emissions; then there is the possibility that the EMI requirement will not be met and ACME hardware would be adversely effected causing diminished science to occur.	2	3	Mitigate: The ACME team will be intensively working with the EMI lab to determine what if any EMI exceedences occur to meet its EMI requirement and minimize any impact on the hardware. Status: 1/11/11 Planned testing has been delayed due to funding. 11/23/10 No changes or updates at this time. 9/14/2010 No changes or updates at this time. 05/03/11 - 5/3/2011 - This risk will be on hold until the Engineering Model is completed. 05/31/11 - 5/31/11 - Nothing new to report. 02/14/12 - Still appear to be on target for test date. 06/12/12 - EMI testing has begun and should be completed by the end of June 2012. ECD: 05/31/2013
ACME-017 → Management Rogers	Lack of adequate ISS supplied Nitrogen	Given that it is not known how much ISS Nitrogen can be supplied and re-supplied for use by the CIR for ACME; then there is the possibility that Nitrogen will not be available for ACME and a loss of science will occur.	1	3	Watch: Awaiting the test point matrix to be developed to get a better estimate of required nitrogen. Status: 10/25/11 - Draft update of science matrix is in review. 12/13/11 - No updates at this time. Zin personnel are still awaiting the draft of the science matrix from the NASA Scientist. 01/10/12 - Still reviewing at the monthly ACME RMWG. 02/14/12 - No updates at this time. 03/27/12 - Risk reviewed by the ACME team and no status updates at this time. 05/08/12 - ACME RMWG has reviewed this risk and there are no updates at this time. 05/08/12 - Test point matrix has been completed and is in the process of being reviewed for Nitrogen needed from ISS. 06/12/12 - Risk was reviewed at the monthly ACME RMWG and there are no updates at this time. ECD: 12/31/2012

119 Ares V Payload Shroud Element (PSE) Project

ZIN Manager: Michael Johanson

ZIN Engineering Lead: Bill Dial

NASA Project Manager: Gerry Sadler



SpaceDOC 119 encompasses evaluation of potential manufacturing approaches focusing on the Heavy Lift Payload Shroud but not be limited to (e.g. can include other element composite dry structures). Approaches may include: existing composite manufacturing sites, MAF, and new sites. ZIN and our subcontractor Zero Point will identify needed composite manufacturing assets and capabilities to support current Heavy Lift Vehicle concept and associated requirements based on manufacturing assessments done by the NASA ESMD ACT project. The scope of the analysis shall include logistics and supply chain requirements.

Issue	Potential Impact	Action Plan	Resolution Date
None			

- Continued to provide support in updating the BOE for the Baseline SLS Fairing (Phase 0, Phase 1, & Phase 2)
- Continued to work Shroud Structural Analysis and Design task.

Milestone Schedule

119 Ares V Payload Shroud Element (PSE) Project

Milestone (Cal 10)	Baseline (Cal 10)	Projected	Actual	Schedule Variance
Payload Shroud Technology Development Plan	November 30, 2010	Nov 30, 2010	Nov 30, 2010	None
Preliminary Element Integration Assessment Report	January 15, 2011	Jan 15, 2011	Jan15, 2011	None
Manufacturing Implementation Plan	February 15, 2011	Feb 15, 2011	Feb 15, 2011	None
Final Element Integration Assessment Report	March 25, 2011	April 25, 2011	April 25, 2011	1 month no cost extension approved by Gerry Sadler
Provide a Basis of Estimate Bottoms Up Assessment of the Current SLS Shroud for metallic and composite 8.4 meter baselines.	June 6, 2011	June 6, 2011	June 6, 2011	None
Assessment of CPS Impacts on Payload Shroud	September 30, 2011	Sept 30, 2011	Oct. 13, 2011	Delivery slipped based on stop work due to lack of funding, slip was approved by Gerry Sadler
Fairing Basis of Estimate Updates 1. PPBE13 Update 2. Initial PPBE14 Update 3. Final PPBE14 Update	1. Oct. 30, 2011 2. May 30, 2012 3. Sep 30, 2012	1. Oct. 30, 2011 2. May 30, 2012 3. Sep 30, 2012		The PPBE schedule is determined by NASA and the dates of the deliverables are subject to change.
Analysis and Design Reports 1. SRR 2. SDR	1. Oct. 1, 2011 2. Feb 1, 2012	1. Feb 1, 2012 2. Feb 1, 2012		SLS SRR & SDR are NASA determined dates. They are currently planned to be combined and held Feb. 15, 2012.
Payload Fairing Evaluation: Test Plans and Procedures	15 day prior to testing			Work is de-scoped
Delta IV Stage Integration Assessment	Jan 31, 2012	Jan. 31, 2012		Work is de-scoped

Study Delivery Order – No risks



Project Manager: Chris Sheehan

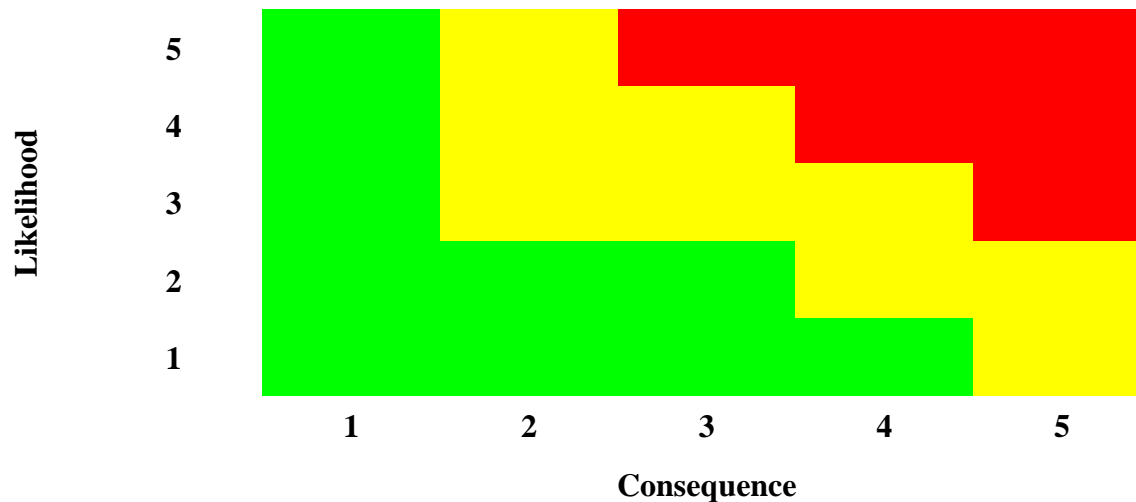


SpaceDOC 126 continues the work performed under SpaceDOC 113 to manufacture and flight verify the CSM/Glenn Harness as a crew preference item. Additionally, this delivery order carries drawing and documentation build information and materials research to allow for removal of the SDTO containment bag

EVM Milestone Schedule

126 Human Health Countermeasures (HHC)

WBS	Title	EVM Method	Start Date	End Date	EVM Plan
1.1	Management				
1.1.1	Project Management	LOE	6.01.11	5.31.12	8.3%/month
1.1.2	EVM/Cost Reporting	LOE	6.01.11	5.31.12	8.3%/month
1.1.3	Configuration Management	LOE	6.01.11	5.31.12	8.3%/month
1.1.4	Property Management	LOE	6.01.11	5.31.12	8.3%/month
1.1.5	Shipping and Receiving	LOE	6.01.11	5.31.12	8.3%/month
1.1.6	Purchasing	LOE	6.01.11	5.31.12	8.3%/month
1.3	Product Assurance				
1.3.1	Quality Management	LOE	9.14.11	5.8.12	12.5%/month
1.7	HHC Final Design and Fabrication	LOE	6.01.11	5.31.12	8.3%/month
1.8	System Assembly, Integration, Test and Launch	LOE	9.21.11	5.22.12	12.5%/month



NO RISKS IDENTIFIED AT THIS TIME

Trend Legend

⬆ Upward

⬇ Downward

➡ No Change

■ New

Issue	Potential Impact	Action Plan	Resolution Date
None	-	-	-

DO-128 Communications, Navigation, and Networking Reconfigurable Testbed (CoNNeCT-2)



ZIN Project Lead: Ray Pavlik
ZIN Software Lead: Jennifer Keller

NASA Project Manager: Diane Malarik
NASA Deputy Project Manager: Mike Zernic
NASA GRC PI: Rich Reinhart
NASA GRC Deputy PI: Sandy Johnson

- An on-orbit, adaptable, Software Defined Radios (SDR)/Space Telecommunications Radio System (STRS)-based testbed facility to conduct a suite of experiments to advance technologies, reduce risk, and enable future mission capabilities on the International Space Station (ISS).
- DO-128 Scope of Work includes:
 - Performing configuration management activities, including software.
 - Remaining development of the CoNNeCT Flight and Ground System Software.
 - Integration with the Payload Operations Integration Center (POIC) and SCaN-provided SN, NEN, and NISN.
 - Sustaining Engineering and Operations of the Flight and Ground System.
 - Experiment Integration and Operation

Issue	Potential Impact	Action Plan	Resolution Date
None			

- Subtask A CM/DM
 - Attended Experimenter Software Configuration meeting to discuss the requirements for PIs to submit their waveform changes into the SDR Subversion repository for official CM control.
 - Reviewed, formatted, and released multiple Document, Process Plans, Change Requests, and NCRs
 - Supported GIU drawing updates
 - Supported SCan team with various mainline requests: sent specific file versions to requestors, created branches
- Subtask B SE&I and Experiment Integration
 - GIU GPS Status
 - Received the Safety Permit for the GPS System in B333.
 - The GPS System Test Procedures (GRC-CONN-TEST-0926) were completed, signed off and entered into CM.
 - ELC SCS 28VDC Power Supply with the current display issue.
 - Returned power supply to manufacturer for repair.
 - Received power supply from manufacturer after repair.
 - Connected power supply to load and ran for 4 hours. Did not see any voltage or current drift on the panel display during this time. Will conduct additional testing.
 - Plan is to use this power supply only as a backup.
 - The initial run of the GIU Maintenance Procedure (GRC-CONN-PLAN-0895) was performed. Everything was found to be nominal.

- Subtask B SE&I and Experiment Integration (continued)
 - GIU Electronic Log
 - Performed the steps necessary to transfer the ownership of Laptop PC to be used for the GIU Electronic Log.
 - Installed the Laptop PC at the GIU and configured for access to the GIU Log Website.
 - Developed a list of personnel needing access to the GIU Log Website.
 - Assigned Usernames and Passwords for those personnel needing immediate access.
 - GIU Actions
 - Maintained the GIU Usage Schedule.
 - Controlled the configuration of the GIU as per users' needs.
 - Assisted with Avionics/GD/APS characterizations, Avionics/JPL/APS characterizations, Avionics/Harris (w/TWTA)/APS characterizations, VNA TEI #1 characterizations, GIU / TSC Operations Procedures Checkout
 - Began working with and writing up the procedures for operating the NoiseCom Noise Insertion Unit in each of the T.E.I.s.
 - Arranged an area within B333 room 100W for the Engineering Development System (EDS). A set of work benches were acquired and arranged in a work area adjacent to the GIU.
 - Released a draft of Avionics Characterization Test report for internal project review.

- Subtask B SE&I and Experiment Integration (continued)
 - Supported 3 experiment integration teleconferences. At present these teleconferences are with JPL only. A series of open questions were dispositioned.
 - Supported 3 Experiment Question disposition meetings to work through questions submitted to the SCan Testbed project by prospective experimenters. A total of 40 questions have been received and 25 questions have been closed via response to the submitter.
 - An outcome of some of the early mission operations support was recognition of certain data needs by experimenters. In particular, it appears that a large fraction of the operations telemetry data will be desired by experimenters in near real time as opposed to hours or days after the operational day. While Jim Lux was at GRC, several meetings were conducted to refine the need and determine how to best request this from the project. Additionally, it was determined that an experimenter could request this data to be sent to them from the HOSC for direct analysis using experimenter resources.

- Subtask C Flight & Ground Software
 - Began submitting Change Requests for the first flight software upload.
 - Supported the MER FIT ELC3 - STP-H3/Scan 1553 Issue.
 - Supported on-orbit SCaN Testbed Operations at the TSC.
- Subtask D Mission Operations
 - Supported the transfer of SCAN Testbed from HTV to ELC-3 .
 - Completed weeks 1 and 2 of SCaN Testbed on-orbit checkout.
 - Developed an Activity Form for the S-Band Normal Data Dump and wrote an OCR to get the test incorporated into the timeline (Brown).
 - Continued the SN and NEN LGA S band antenna pass planning to support the antenna path characterization. The TCR's were delivered on 9/16 and 9/23 to support the pass planning for Weeks 19, 20 Increment 32 .
 - Continued the restructuring of the STK project to allow each of the antennas to be represented and solved in separate projects. Previously, these were combined into a single project which resulted in excessive computation times once a change to the TLE conditions was input. Now the solution runs more quickly and allows for rapid scenario testing. It was also determined that the NEN obscuration model was resulting in long prediction times when the access information was displayed. This has been rectified. The STK ATTITUDE model has been installed now.
 - The LynxCAT solid model was revised to include the ORU display to support APS checkout. This allowed the full articulated 3D model to be displayed in the same orientation as the video return, thereby verifying motions and orientations.

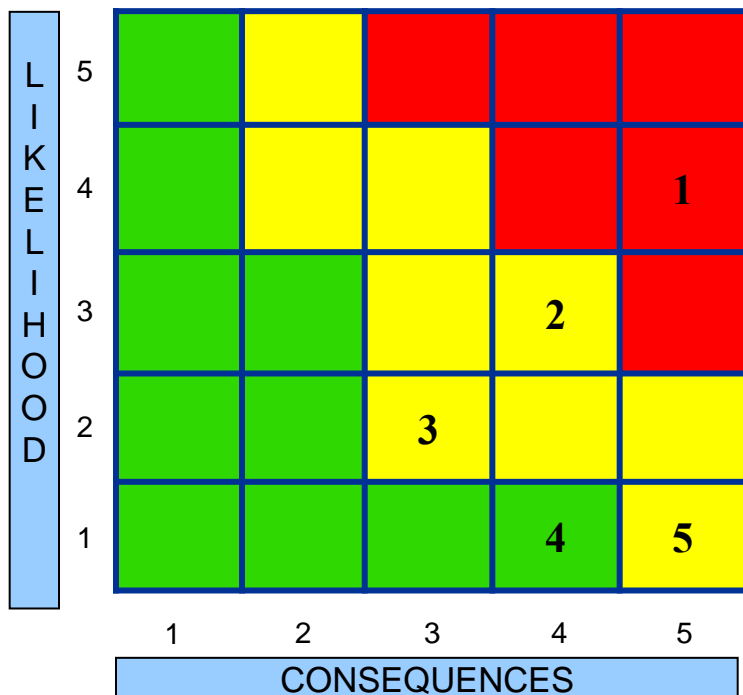
- Subtask D Mission Operations
 - In response to NISN and GRC IT Security requirements, added security banner to all three SFEPs. When a user logs in to each SFEP they are notified that this system is for official government use only. The user will also be notified when accessing the SFEP through an SSH connection.
 - Submitted NCCDS database change request (DBCRs) forms to the White Sands NCCDS manager to include User Interface Channels (UIFCs) for certain GD Forward and Return Service Specification Codes (SSCs) .
 - Based upon meetings with the Science/Comm team, a number of new SSCs need to be implemented in NCCDS to support Checkout and Commissioning for GD (8361), JPL (8372) and Harris (8373). Currently have mapped the launch waveforms to the GD and JPL SSCs. Based upon this mapping, modifications need to be made to the SSCs that don't have a parent waveform. Started mapping the Harris SSCs to their parent waveform IDs.
 - Submitted initial SN and NEN resource schedule request on August 17 and August 24 to support RF subsystem checkout.

Hardware/Software Deliverables

No.	Item Description	Planned Completion Date	Actual Completion Date	Note
a)	Subtask A –CM/DM: Configuration Management and Tracking System (CMTS)	December 31, 2012		Hardware
b)	Subtask C – Flt & Grnd SW: Verified Post-Ship Flight Software for subsequent upload to the Flight System	July 2012		Software – This has been rescheduled to December 2012.
c)	Subtask C – Flt & Grnd SW: Verified Ground Software required for JAXA Ground Processing	February 2012	February 2012	Software
d)	Subtask C – Flt & Grnd SW: Ground Software to support Mission Simulations	Q3 FY12	July 12, 2012	Software – Final Mission Simulation held 07/12/12.
e)	Subtask C – Flt & Grnd SW: Verified Ground Software, suitable for use during C/O & C	June 2012	August 2012	Software - SCaN Testbed operated for first time on-orbit on 08/13/2012.
f)	Subtask C – Flt & Grnd SW: Verified Ground Software, suitable for use with Post-Ship Flight Software	July 2012		Software – This has been rescheduled to December 2012.
g)	Subtask D – Mission Ops: Control Center Equipment for use during Mission Simulations and Mission	Q3 FY12		Hardware – No additional equipment required to date.
h)	Subtask D – Mission Ops: Data Distribution Services Software	May 2012		Software – Moved to December 2012 in order to capture lessons learned from C&C.

DO-128 Risk Matrix Overview

STATUS AS OF: 8/25/12



LxC Trend	Rank	Approach	Risk Title
→	1	M	Underfunded Operations and Experiments Phase
→	2	M	Experimenter Software Interface
→	3	M	Loss of Experienced Software Personnel
→	4	M,W	ELC HRDL Repair
N	5	M,W	Lack of GIU Spares

Criticality	L x C Trend	Approach
High	↓ Decreasing (Improving)	M – Mitigate
Med	↑ Increasing (Worsening)	W – Watch
Low	→ Unchanged	A – Accept
	N New	R – Research
		C – Closed